

14

A COMPARISON OF TWO
METHODS OF TEACHING
SPELLING

A Field Report
presented to
The Graduate Division
Drake University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science in Education

by
Robert Brooks McGraw

August 1963

1963
M178

162²
93

A COMPARISON OF TWO
METHODS OF TEACHING
SPELLING

by

Robert Brooks McGraw

Approved by Committee:

Marvin Fellers
Chairman

Earle L. Canfield
Dean of the Graduate Division

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION.	1
The Problem	1
Statement of the problem.	1
Importance of the study	2
Definition of terms used.	3
Experimental section.	3
Control section	3
Limitations of the study.	3
Status of students involved	4
II. REVIEW OF LITERATURE.	5
Introduction.	5
Literature on individual differences.	5
Literature on grouping for spelling	7
Present status of spelling.	11
Summary	12
III. DESCRIPTION OF PROCEDURE.	14
Introduction.	14
Sectioning.	14
Experimental section.	15
Control section	15

CHAPTER	PAGE
Plan of instruction	17
Pre-testing	17
Weekly plan of instruction for experimental section.	20
Weekly plan of instruction for control section	22
Post-testing.	23
Summary	27
IV. RESULTS AND INTERPRETATION OF ANALYSIS.	28
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	35
Restatement of the problem.	35
Procedures used	35
Principal findings and conclusions.	35
Recommendations	36
BIBLIOGRAPHY.	37

LIST OF TABLES

TABLE	PAGE
I. Intelligence Quotient Scores Received by Des Moines Nash School Students in Both the Experimental Section and the Control Section as Measured by the California Test of Mental Maturity, Elementary, 1957 Edition.	16
II. One-Hundred Words Given as a Pre-Test to Des Moines Nash School Students in Both the Experimental Section and the Control Section.	18
III. Number and/or Percentage of Words Spelled Correctly on the One-Hundred Word Pre-Test by Des Moines Nash School Students in Both the Experimental Section and the Control Section.	19
IV. One-Hundred Words Given as a Post-Test to Des Moines Nash School Students in Both the Experimental Section and the Control Section.	24
V. Number and/or Percentage of Words Spelled Correctly on the One-Hundred Word Post-Test by Des Moines Nash School Students in Both the Experimental Section and the Control Section.	25
VI. Comparison of the Number and/or Percentage of Words Spelled Correctly on the One-Hundred Word Pre-Test and the One-Hundred Post-Test by Des Moines Nash School Students in Both the Experimental Section and the Control Section.	26
VII. Observed Frequencies of Des Moines Nash School Students Making Adequate and Inadequate Percentages of Increase of Correctly Spelled Words in the Post-Test as Compared With the Pre-Test in Both the Experimental Section and the Control Section.	30

TABLE

PAGE

VIII.	Expected Frequencies of Des Moines Nash School Students Making Adequate and Inadequate Percentages of Increase of Correctly Spelled Words in the Post-Test as Compared With the Pre-Test in Both the Experimental Section and the Control Section.	31
IX.	Discrepancies Between the Observed Frequency and Expected Frequency of Des Moines Nash School Students Making Adequate and Inadequate Percentages of Increase of Correctly Spelled Words in the Post-Test as Compared With the Pre-Test in Both the Experimental Section and the Control Section Shown in Tables VII and VIII	32
X.	Chi Square, the Sum of All the Ratios in the Contingency Table Based on the Experimental and Control Sections for this Study	33

CHAPTER I

INTRODUCTION

In the past several years research has been carried on to determine which words and number of words that should be taught at certain age levels. Much has been done to develop effective procedures of teaching spelling at different grade levels. However, it would seem that not enough research has been done to determine what effect careful and deliberate grouping of boys and girls within a given class would have upon the effectiveness of an already carefully planned program for teaching spelling. In this study an attempt was made to determine what effect grouping of boys and girls had upon growth in spelling ability.

I. THE PROBLEM

Statement of the problem. It was the purpose of this study to measure the effect of an experimental method of teaching spelling based on grouping according to an intelligence test, as compared to a conventional method of teaching spelling to all boys and girls from the same instructional material.

Importance of the study. The writer, while teaching in the intermediate grades, has observed the wide range of spelling ability that exists among children. It has been further observed that spelling is an area in which children make slower progress than in other subject areas. Lee and Lee have stated:

We acknowledge that spelling is the area of poorest accomplishment in the schools today.¹

In view of poor accomplishment in spelling and the wide range of spelling ability on the part of intermediate grade children, the writer felt the need for additional research that would help determine whether grouping, a method to meet individual differences, was a more effective method of teaching spelling than the more conventional method of teaching all students from the same instructional materials. Indeed, Ernest Horn has stated in an article about spelling:

More complete evidence is needed on many aspects of learning including provision for individual differences.²

¹J. Murray Lee and Dorris Mary Lee, The Child and His Curriculum (New York: Appleton-Century-Crofts, Inc., 1960), p. 346.

²Ernest Horn, "Spelling," Encyclopedia of Educational Research (New York: The Macmillan Company, 1950), p. 1260.

II. DEFINITION OF TERMS USED

In order to develop clarity throughout this study, the following terms were defined:

Experimental section. The experimental section shall be the section divided into three groups working at different ability levels.

Control section. The control section shall be the section in which all children are working from grade level instructional materials.

III. LIMITATIONS OF THE STUDY

This study was limited to two sections of sixth grade boys and girls at Nash School Des Moines, Iowa. Each section consisted of thirty boys and girls. It was further limited to the fourth, fifth, and sixth grade instructional materials of the Spelling for Word Mastery series.¹ This study, which was in progress for eighteen weeks, was limited to one-hundred minutes of guided spelling instruction per week. The words used for testing, both before and after the experimental period, were taken from: A

¹David H. Patton and Eleanor M. Johnson, Spelling for Word Mastery (Columbus: Charles E. Merrill Books, 1957).

Measuring Scale for Ability In Spelling.¹

IV. STATUS OF STUDENTS INVOLVED

The students involved in the study were two groups of thirty sixth grade boys and girls each in Nash School Des Moines, Iowa, during the school year of 1961-1962. The school is located in a community of predominately lower income families. However, there are some families which would be classed in the average income brackets. The boys and girls ranged in age from eleven to thirteen years; and ability level ranged from seventy-one to one-hundred forty-five intelligence quotient according to the California Test of Mental Maturity, Elementary, 1957 Edition, by Sullivan, Clark, and Tiegs. The races in each group included Negro, Oriental and Caucasian.

¹Leonard P. Ayres, A Measuring Scale for Ability In Spelling (New York: Russell Sage Foundation, 1915), pp. 12-20.

CHAPTER II

REVIEW OF LITERATURE

I. INTRODUCTION

Many studies have been made and much research has been done in the area of spelling. Many of the studies were concerned with selection and grade placement of spelling words, description of various methods of teaching spelling, and measuring results of spelling instruction. The investigator could locate only a few references dealing specifically with ability grouping for the instruction of spelling. In a letter received from Lewis, the writer was informed:

I do not know of any research that has been done in relation to ability grouping for instruction in spelling.¹

II. LITERATURE ON INDIVIDUAL DIFFERENCES

Modern educators seem to agree that children differ from each other in their learning capacity and potential, and that the modern teacher and school must adjust their

¹Gertrude M. Lewis, Specialist for Upper Grades, Department of Health, Education and Welfare Office of Education, Washington D. C.

programs by some method to adequately meet these differences.¹

In her discussion of individual differences in spelling Hildreth stated:

Variations in spelling capacity, interest and needs suggest that beyond minimum spelling requirements a single standard for maximum accomplishment is superfluous, unattainable, and unfair to individual pupils.²

Gilstrap has observed that there is a trend toward a more individualistic approach to the teaching of spelling. He stated that research summaries have revealed that when the child's individuality is recognized, and spelling lists are based on his needs, his achievement is greater.³

In an article discussing methods of teaching spelling Therman stated that teaching methods are most effective when the wide span in spelling abilities are recognized,

¹Freeman Glenn Macomber, Principles of Teaching in the Elementary School (New York: American Book Company, 1954), pp. 30, 31.

²Gertrude Hildreth, Learning the Three R's (second edition; Minneapolis: Educational Publishers, Inc., 1947), p. 488.

³Robert Gilstrap, "The Development of Independent Spelling Skills in the Intermediate Grades," Elementary English, XXXIX (May, 1962), 481.

and that provisions are made for individual differences.¹

One conclusion drawn by Campanole in an article concerning methods of teaching spelling was that regardless of method used, spelling lessons should be adjusted to the individual's rate of growth.²

It has been well stated by Blake that:

It is the responsibility of the elementary school to teach children to spell. Evidence shows that our spelling programs need to be improved to some extent. Toward this end, without a doubt, more attention must be given, particularly in the upper elementary grades, to the principle that all children learn to spell differently.³

III. LITERATURE ON GROUPING FOR SPELLING

Grouping children for spelling instruction is a method suggested by many educators to meet the variation of spelling ability within a class.

In a study cited by Dawson and Dengee a fifty word spelling test (words ranging from grade two to grade five) was given in the fifth grade. After compiling the results

¹Viola Therman, "Research Indicates More Effective Ways of Teaching Spelling," NEA Journal, XL (December, 1951), 607.

²Eugene A. Campanole, "Survey of Methods in the Teaching of Spelling," Elementary English, XXXIX (May, 1962), 453.

³Howard E. Blake, "Studying Spelling Independently," Elementary English, XXXVII (January, 1960), 32.

of the test, the pupils were divided into three groups: third, fourth and fifth speller groups. At the end of the year the pupils were given standardized tests which showed over two years' progress. Other fifth grade pupils who were all taught at the fifth grade level made less than a year's progress on the average.¹

Horn stated:

There is a wide range of spelling achievement in any grade. Some children in grade six, for example, may spell as well as the average pupil in grade nine, and some, no better than the average pupil in grade three.

The most practicable plan for meeting these differences is a combination of group teaching and help given by the teacher to individual pupils who are having special difficulties.

The class or group as a whole should deal only with matters of common concern. It is inefficient to take the time of the whole class to meet the needs of only a few.²

McKee agreed with Horn that there is no economy in having a pupil study words of a lesson that he already knows. He suggested that each child only work on his own difficulties.³

¹Mildred A. Dawson and Frieda Hayes Dingee, Children Learn the Language Arts (Minneapolis: Burgess Publishing Company, 1959), p. 33.

²Ernest Horn, Teaching Spelling (What Research Says to the Teacher No. 3. Washington D. C.: National Education Association, 1962), pp. 24, 25.

³Paul McKee, Language in the Elementary School (Boston: Houghton Mifflin Company, 1939), p. 395.

Dawson and Zollinger commented, as follows:

Probably the greatest waste in spelling instruction consists in the teacher's having the able spellers in the class study and practice words they already know; and permitting poor spellers to spend a large portion of their time on words they seldom use, meanwhile continuing to misspell words commonly used in everyday writing.

During the spelling period the teacher plans instruction to meet the needs of the class, or individuals, or small groups as the situation demands.¹

In their chapter dealing with spelling in grade five, Clanfield and Hannon stated that because of the wide variation in spelling achievement, grouping for spelling instruction is becoming much more important.²

The Des Moines Elementary Spelling Curriculum Guide made the point about grouping very clear when it stated that teachers must differentiate instruction according to the abilities and needs of the children. One way to meet this need, according to the guide, is to group the children for spelling instruction at a level comparable to their basic reading instruction.³

¹Mildred A. Dawson and Marian Zollinger, Guiding Language Learning (New York: World Book Company, 1957), pp. 419-424.

²Mary Clanfield and Cecil Hannon, Teach Spelling By All Means (San Francisco: Fearon Publishers, 1961), p. 52.

³Ruth Collins and others, "Spelling Curriculum Guide Grades 1-6" (Des Moines: Department of Elementary Education, Des Moines Public Schools, 1958), p. 1. (Mimeographed)

Hildreth stated that it is necessary to adapt spelling instruction to the needs of individuals in order to avoid waste and to insure the highest achievement for each child. One method to meet this need is to group pupils according to ability.¹

Ragan has recognized in his book on modern curriculum that no single list of words used with the entire class can possibly meet the spelling needs of all children. He stated that by expecting a higher level of achievement from children than they are ready for only will result in discouragement and dislike for spelling. He also said that an equally harmful practice is to fail to challenge better students to their full capacity.²

The writer has often heard that working with many groups is so time consuming. However, authorities have stated that:

Usually a teacher can work successfully with two groups in teaching spelling. One group can do individual study while the teacher gives instruction to the "late bloomers."³

¹Gertrude Hildreth, Teaching Spelling (New York: Houghton Mifflin Company, 1956), pp. 171-173.

²William B. Ragan, Modern Elementary Curriculum (revised edition; New York: Holt, Rinehart and Winston, 1961), p. 216.

³Educational Advisory Board, "Teaching Spelling... have you tried these techniques?" The National Elementary Principal, XXXVIII (May, 1959), 30.

It has been shown that grouping is one method of meeting individual differences in spelling ability in the framework of a normal classroom. Fitzgerald stated in his chapter on remedial spelling instruction that grouping is also an effective method of meeting individual differences in the abilities in a remedial classroom.¹

III. PRESENT STATUS OF SPELLING

Herrick and others have very well summarized the current practices in spelling when they stated:

Perhaps more than any of the other language arts, spelling instruction is highly systematized. Regular periods for spelling are scheduled in the daily program, the series of activities for the week are generally specifically indicated, and periodic reviews are carefully planned. Almost universally, a study outline or method of learning to spell is the basis for these programs. In the lower grades, it is customary to find more group teaching of spelling, whereas in the upper grades more time is allotted for individual study.

Spelling readiness is becoming as important as reading readiness. Along with writing readiness, it depends on such factors as visual and auditory discrimination, the acquisition of basic speaking and reading vocabularies, recognition of writing needs (including an interest in words), and adequate muscular coordination. For these reasons, formal spelling is generally introduced in the second grade; at all levels, word meaning should be developed prior to learning to spell particular words.

Spelling instruction is becoming more functional.

¹James A. Fitzgerald, The Teaching of Spelling (Milwaukee: The Bruce Publishing Company, 1951), pp. 208-210.

Fewer words are being taught, but their selection is generally based on studies of adult and/or children's usage.

Greater concern is being shown for the individualization of instruction in all spelling programs. Adjustments are often made in methods used, difficulty level of words to be mastered, number of words to be learned, and/or the amount of time spent on spelling.¹

Hanna and Hanna made these comments on the present and future status of spelling:

1. New research now emphasizes that eighty percent of all phonemes in a basic three thousand word writing vocabulary are consistently spelled.
2. New insights into the psychology of spelling give us a brighter outlook for the future.
3. A phonemic analysis of words and an inductive study of the letter symbols used to spell the sounds in words, provide a firm base for the spelling program.

This new approach coupled with a word-study plan gives us hope of a day when all our pupils can spell correctly the words they need to write.²

IV. SUMMARY

Most educators concur that individual differences exist in the spelling abilities of children; and that these individual differences must be met in one way or another. Although there are few specific studies to cite as evidence, many educators seem to agree that grouping children for

¹Virgil E. Herrick and others, The Elementary School (Englewood Cliffs: Prentice-Hall, Inc., 1956), pp. 177-178.

²Paul R. Hanna and Jean S. Hanna, "Spelling Today," The Instructor, LXX (November, 1960), 106.

spelling instruction is an effective method of meeting these individual differences in spelling ability.

CHAPTER III

DESCRIPTION OF PROCEDURE

I. INTRODUCTION

The purpose of this chapter is to describe the procedure followed in the teaching of spelling based on ability grouping; and the procedure followed in gathering data which were pertinent to the study. The experimental method of research carried on in the writer's classroom seemed to be the most advantageous approach to the problem, because of the simplicity with which it could be administered and the ease with which data could be gathered.

II. SECTIONING

It was decided that the children should first be separated into two sections of thirty, so that the ability level could be as evenly distributed in each section as possible according to the intelligence quotient scores received in the California Test of Mental Maturity, Elementary, 1957 Edition, by Sullivan, Clark and Tieges given the previous spring.

After sectioning the children as evenly as possible according to each child's intelligence quotient, the next decision was to determine which section would be the

experimental section and which would be the control section.

Experimental section. It was decided that the section ranging in intelligence quotients from seventy-one to one-hundred twenty-one would be the experimental section. This section, in turn, was divided into three groups according to the intelligence quotient scores. Those having an intelligence quotient of seventy-one to ninety-one received their instruction from the fourth grade speller; those having an intelligence quotient of ninety-two to one-hundred five received their instruction from the fifth grade speller and those having an intelligence quotient of one-hundred six to one-hundred twenty-one received their instruction from the sixth grade speller. All members of this section were taught by the writer.

Control section. It was decided that the section ranging in intelligence quotients from seventy-two to one-hundred forty-five would be the control section. All members of this section were taught by the writer from sixth grade level instructional materials. This section received the same plan of instruction as the sixth grade speller group in the experimental section.

Table I shows the intelligence quotient scores received by students in both the experimental section and the control section. The experimental section has a median intelligence quotient of one-hundred two and a range of

TABLE I

INTELLIGENCE QUOTIENT SCORES RECEIVED BY DES MOINES NASH
SCHOOL STUDENTS IN BOTH THE EXPERIMENTAL SECTION AND
THE CONTROL SECTION AS MEASURED BY THE
CALIFORNIA TEST OF MENTAL
MATURITY, ELEMENTARY,
1957 EDITION

EXPERIMENTAL SECTION		CONTROL SECTION	
Name	Intelligence Quotient	Name	Intelligence Quotient
Kent	121	Linda S.	145
Bob	121	Peggy	140
Edith	118	Linda H.	133
Carol	115	Cecil	121
William	113	Karen	119
Kevin	111	Sondra	119
Raissa	109	Carol	111
Susan	108	Mary Jo	108
Gary	107	Girard	107
John	106	Sharon	106
Tony	106	Shelley	105
Linda	105	Carl	103
Pamela	104	Roger	101
Danny	103	Iona	98
Mike	102	Linda T.	98
Charnell	101	Renee	94
Diane	96	Billy	94
Francine	95	Rita	94
Vicki	93	Ruby	93
Diana	93	Kathy	92
Stephen	93	Louise	92
Clive	91	Harriet	89
Mickey	90	Mary	87
Walter	89	Mike E.	86
Jacinta	88	Mike J.	85
Billie Mae	81	Inez	81
Lovella	80	Marlene	78
Johnanna	73	Bruce	76
Florence	72	Bonita	74
Jack	71	Steve	72

intelligence quotients from seventy-one to one-hundred twenty-one. The control section has a median intelligence quotient of ninety-eight and a range of intelligence quotients from seventy-two to one-hundred forty-five.

III. PLAN OF INSTRUCTION

It was decided to follow the plan of instruction step by step for each section as it was outlined in the Spelling for Word Mastery series.¹ The weekly plan of instruction will be discussed in detail later in this chapter.

Pre-testing. Before any actual guided instruction began, all children, both in the experimental section and the control section, were given a one-hundred word spelling test taken from A Measuring Scale for Ability In Spelling.² Starting with the first word, every tenth word was chosen from a list of one thousand words arranged in order of their difficulty. The scores from the pre-test were recorded, to be compared later with the post-test scores.

Table II shows the one-hundred words given as a pre-test to students in both the experimental section and the control section.

Table III shows the number and/or percentage of

¹Patton and Johnson, loc. cit.

²Ayres, loc. cit.

TABLE II

ONE-HUNDRED WORDS GIVEN AS A PRE-TEST TO
DES MOINES NASH SCHOOL STUDENTS IN
BOTH THE EXPERIMENTAL SECTION
AND THE CONTROL SECTION

the	act	account
it	remember	escape
at	along	select
dear	family	became
has	action	extreme
when	spend	repair
him	bring	assure
our	between	goes
think	summer	omit
than	ring	round
said	obtain	capture
before	except	engage
next	country	principal
today	awful	stopped
home	past	common
get	principle	illustrate
did	automobile	surprise
receive	although	begun
help	June	comfort
Sunday	cover	manner
kind	son	agreement
doctor	began	command
live	nor	department
big	door	entertain
Saturday	refer	guest
says	walk	play
arrest	liberty	testimony
need	section	await
ten	felt	century
each	secure	height
left	buy	majority
high	leave	population
everything	request	race
		term

NOTE: Words were taken from A Measuring Scale for
Ability In Spelling by Leonard P. Ayres.

TABLE III

NUMBER AND/OR PERCENTAGE OF WORDS SPELLED CORRECTLY
ON THE ONE-HUNDRED WORD PRE-TEST BY DES MOINES
NASH SCHOOL STUDENTS IN BOTH THE
EXPERIMENTAL SECTION AND THE
CONTROL SECTION

EXPERIMENTAL SECTION		CONTROL SECTION	
Name	Score	Name	Score
William	98	Peggy	97
Raissa	91	Linda S.	95
Edith	88	Karen	91
Charnell	87	Carol	86
Carol	85	Carl	82
Danny	84	Linda H.	81
Bob	83	Sondra	79
Pamela	80	Sharon	79
Clive	77	Linda T.	78
Linda	77	Bruce	78
Stephen	71	Robert	78
Diana	71	Girard	77
Francine	70	Renee	76
Billie Mae	65	Iona	72
Kent	62	Cecil	72
Gary	61	Rita	67
Jack	60	Shelley	64
Johnanna	60	Mary Jo	64
Kevin	59	Mary	62
Tony	58	Mike J.	60
Vicki	58	Louise	47
Susan	56	Kathy	46
Jacinta	54	Ruby	45
Mickey	49	Marlene	36
Mike	45	Harriet	35
John	45	Inez	34
Diane	41	Bonita	26
Florence	23	Billy	25
Lovella	22	Steve	16
Walter	22	Mike E.	13

words spelled correctly on the one-hundred word pre-test by students in both the experimental section and the control section.

Weekly plan of instruction for experimental section.

On the first day of the week, the group working in the fourth grade spelling text read together the story that contained the words for the week and discussed the picture accompanying the lesson. The pupils then pronounced each word after the teacher to insure correct pronunciation and discussed each word for meanings.

After all meanings had been learned, the pupils then studied each word following outlined steps:

- Step 1. Look at the word and say it. Listen to the word as you say it. What letter stands for each sound? Are any letters in the word silent?
- Step 2. Close your eyes. Spell the word to yourself. Try to see the word as you say the letters.
- Step 3. Look at each word again. Did you say all the letters right? If not, spell the word again to yourself.
- Step 4. Write the word on paper from memory. Check your written word. Is it spelled right?
- Step 5. If you spelled the word wrong, study it again. Begin again with step 1.¹

On the second day the child read the story again and looked over the word list to be certain of meaning and

¹Patton and Johnson, loc. cit.

pronunciation. Then he worked out the answers to a group of exercises emphasizing the meanings and important secondary meanings. This exercise was checked by the teacher upon completion.

After each child had opportunities on the first two days to study the words for meanings, pronunciation, and correct spelling, and had opportunity to work with the words in meaningful exercises, he was given a trial test on the third day, using the weekly word list in dictation sentences. The purpose of this test was to diagnose the child's spelling difficulties. The teacher checked each word, pointing out any errors made. The child then made a list of the misspelled words and studied each word again following the above steps.

On the fourth day of the lesson, the child worked out another group of exercises. These exercises included practice and instruction in word study skills pertinent to spelling:

1. Phonetic elements pertinent to spelling.
2. Practice in special spelling difficulties.
3. Word Analysis skills.
4. Dictionary readiness and dictionary skills.
5. Allied English skills.¹

¹David H. Patton and Eleanor M. Johnson, Spelling for Word Mastery, Teacher's Manual (Columbus: Charles E. Merrill Books, 1957), p. 3.

Each exercise was checked by the teacher for the purpose of discovering problems to be retaught.

The children took their final test on the fifth day, again in dictation sentences. Each word was checked by the teacher, pointing out any errors made. The children then recorded on their individual charts the number of words misspelled. Also, each child made a list of words misspelled on the final test. This list was a cumulative list to help the child prepare for his six weeks' review lesson.

The review lesson included daily exercises similar to those contained in the weekly lessons. These exercises were worked out by the children and checked by the teacher for correctness. Daily, during the week of the review lesson, the child studied words misspelled on the final tests of the weekly lessons. On the last day of the review lesson a twenty word test was given. The words chosen were the most difficult words according to the New-Iowa Spelling Scale, 1954, by Harry A. Green, University of Iowa.

The weekly plan for the groups in the experimental section taking their instruction from the fifth and sixth grade texts was the same except for a few additional words in the weekly and review lessons, and an advance in the difficulty of the words.

The weekly plan of instruction for the control section. The weekly plan of instruction for the control

section was also the same as the above plan, except that all students, regardless of ability, received their instruction from the sixth grade text.

Post-testing. After eighteen weeks of guided instruction described above, a final test was given to both the experimental section and the control section. The words for this test were taken from the same list of one thousand words arranged in order of their difficulty.¹ This final test began with the second word in the list and used every tenth word. In this manner the difficulty of the words in the post-test was the same as the pre-test.

Table IV shows a list of the one-hundred words given as the post-test to students in both the experimental section and the control section.

Table V shows the number and/or percentage of words spelled correctly on the one-hundred word post-test by students in both the experimental section and the control section.

Table VI shows a comparison of the number and/or percentage of words spelled correctly on the one-hundred word pre-test and the one-hundred word post-test by students in both the experimental section and the control section.

¹Ayres, loc. cit.

TABLE IV

ONE-HUNDRED WORDS GIVEN AS A POST-TEST TO DES MOINES
NASH SCHOOL STUDENTS IN BOTH THE EXPERIMENTAL
SECTION AND THE CONTROL SECTION

and	begin	across
was	Wednesday	free
we	August	serve
from	finish	behind
very	change	fix
time	attend	sail
more	company	auto
good	bill	government
should	together	opinion
sir	sit	shut
only	pass	career
long	farther	express
want	fact	proceed
must	complete	vacation
feel	service	convenient
into	ride	injure
little	coming	tree
soon	among	belong
away	list	complaint
use	driven	neighbor
oblige	song	alike
five	carry	committee
mail	sometimes	diamond
Monday	enter	entitle
again	represent	history
car	warm	primary
trip	necessary	track
still	subject	beginning
why	fifth	chain
eight	set	honor
whether	carried	mayor
sorry	length	pound
run	spring	railroad
		town

Note: Words were taken from A Measuring Scale for
Ability In Spelling by Leonard P. Ayres.

TABLE V

NUMBER AND/OR PERCENTAGE OF WORDS SPELLED CORRECTLY
ON THE ONE-HUNDRED WORD POST-TEST BY DES MOINES
NASH SCHOOL STUDENTS IN BOTH THE EXPERIMENTAL
SECTION AND THE CONTROL SECTION

EXPERIMENTAL SECTION		CONTROL SECTION	
Name	Score	Name	Score
William	98	Peggy	98
Raissa	93	Karen	97
Edith	93	Linda S.	96
Danny	93	Sondra	92
Charnell	92	Bruce	91
Bob	90	Roger	90
Carol	89	Sharon	89
Pamela	89	Linda H.	89
Linda	88	Renee	89
Stephen	85	Linda T.	88
Francine	82	Carl	88
Kent	81	Carol	86
Clive	81	Girard	86
Kevin	80	Mary	81
Diana	79	Iona	80
Gary	77	Mary Jo	79
Johnanna	75	Cecil	79
Susan	73	Mike J.	73
Billie Mae	72	Rita	72
Jack	70	Shelley	66
Tony	67	Kathy	63
Jacinta	66	Ruby	56
Vicki	66	Louise	52
Mike	59	Inez	51
Mickey	58	Harriet	41
John	52	Marlene	37
Diane	49	Bonita	36
Lovella	40	Billy	27
Walter	30	Steve	17
Florence	25	Mike E.	11

TABLE VI

COMPARISON OF THE NUMBER AND/OR PERCENTAGE OF WORDS SPELLED
CORRECTLY ON THE ONE-HUNDRED WORD PRE-TEST AND THE
ONE-HUNDRED WORD POST-TEST BY DES MOINES
NASH SCHOOL STUDENTS IN BOTH THE
EXPERIMENTAL SECTION AND
THE CONTROL SECTION

EXPERIMENTAL SECTION			CONTROL SECTION		
Name	Scores		Name	Scores	
	Pre-Test	Post-Test		Pre-Test	Post-Test
William	98	98	Peggy	97	98
Raissa	91	93	Linda S.	95	96
Edith	88	93	Karen	91	97
Charnell	87	92	Carol	86	86
Carol	85	89	Carl	82	88
Danny	84	93	Linda H.	81	89
Bob	83	90	Sondra	79	92
Pamela	80	89	Sharon	79	89
Clive	77	81	Linda T.	78	88
Linda	77	88	Bruce	78	91
Stephen	71	85	Roger	78	90
Diana	71	79	Girard	77	86
Francine	70	82	Renee	76	89
Billie Mae	65	72	Iona	72	80
Kent	62	81	Cecil	72	79
Gary	61	77	Rita	67	72
Jack	60	70	Shelley	66	64
Johnanna	60	75	Mary Jo	64	79
Kevin	59	80	Mary	62	81
Tony	58	67	Mike J.	60	73
Vicki	58	66	Louise	47	52
Susan	56	73	Kathy	46	63
Jacinta	54	66	Ruby	45	56
Mickey	49	58	Marlene	36	37
Mike	45	59	Harriet	35	41
John	45	52	Inez	34	51
Diane	41	49	Bonita	26	36
Florence	23	25	Billy	25	27
Lovella	22	40	Steve	16	17
Walter	22	30	Mike E.	13	11

IV. SUMMARY

This chapter has attempted to present the procedure followed in the execution of the study. The study was made on the basis of scores received on the California Test of Mental Maturity, Elementary, 1957 Edition, by Sullivan, Clark, and Tiegs. The procedure used for both the pre-testing and post-testing was described. The weekly plan for guided instruction in spelling for both the experimental section and the control section was also explained in detail.

CHAPTER IV

RESULTS AND INTERPRETATION OF ANALYSIS

The purpose of this chapter is to describe the plan of analysis used in this study, and give the level of confidence of the study. The group used in this experimental study was a random sample of the sixth grade pupils at Nash School, Des Moines, Iowa. More of the details of the selection and division of this random sample were given in chapter three. For this study, this sample was divided into two sections. This random sample assumes the null hypothesis: that there is no difference between the two sections or divisions of the random sample, and that they both came from the same population. This procedure permits the use of the chi square method of analysis.¹ A contingency table was constructed on the basis of the percentage of increase in learning to spell. The average percentage of increase (8.6 per cent) in spelling ability for both groups was taken as an arbitrary level of adequacy.²

Contingency Table VII shows the observed frequency

¹J. P. Guilford, Fundamental Statistics in Psychology and Education (second edition; New York: McGraw Hill Book Company, Inc., 1950), p. 611.

²8.6 per cent - adequate.

of students making adequate and inadequate percentages of increase of correctly spelled words in the post-test as compared with the pre-test in both the experimental section and the control section. It shows that sixteen cases in the experimental section made an adequate percentage of increase; and that fourteen cases made an inadequate percentage of increase. In the control section fourteen cases made an adequate percentage of increase; and sixteen cases made an inadequate percentage of increase.

Table VIII shows the expected frequency of students statistically expected to make adequate and inadequate percentages of increase of correctly spelled words in the post-test as compared with the pre-test in both the experimental section and the control section. It shows that fifteen cases were expected to make an adequate percentage of increase, and fifteen cases were expected to make an inadequate percentage of increase based on data in Table VII..

Table IX shows the discrepancies between the observed frequency and expected frequency of students making adequate and inadequate percentages of increase of correctly spelled words in the post-test as compared with the pre-test in both the experimental section and the control section shown in Tables VII and VIII.

Table X shows the chi square for this study to be .268. Chi square is the sum of all the ratios in the

TABLE VII

OBSERVED FREQUENCIES OF DES MOINES NASH SCHOOL STUDENTS
 MAKING ADEQUATE AND INADEQUATE PERCENTAGES OF
 INCREASE OF CORRECTLY SPELLED WORDS IN THE
 POST-TEST AS COMPARED WITH THE PRE-TEST
 IN BOTH THE EXPERIMENTAL SECTION AND
 THE CONTROL SECTION

Method	Adequate percentage of increase	Inadequate percentage of increase	Both
Experimental	16	14	30
Control	14	16	30
Total	30	30	60

NOTE: 8.6 per cent - adequate

TABLE VIII

EXPECTED FREQUENCIES OF DES MOINES NASH SCHOOL STUDENTS
 MAKING ADEQUATE AND INADEQUATE PERCENTAGES OF
 INCREASE OF CORRECTLY SPELLED WORDS IN THE
 POST-TEST AS COMPARED WITH THE PRE-TEST
 IN BOTH THE EXPERIMENTAL SECTION AND
 THE CONTROL SECTION

Method	Adequate percentage of increase	Inadequate percentage of increase	Both
Experimental	15	15	30
Control	15	15	30
Total	30	30	60

¹Ibid., p. 274.

NOTE: 8.6 per cent - adequate

TABLE IX

DISCREPANCIES BETWEEN THE OBSERVED FREQUENCY AND EXPECTED
 FREQUENCY OF DES MOINES NASH SCHOOL STUDENTS MAKING
 ADEQUATE AND INADEQUATE PERCENTAGES OF INCREASE
 OF CORRECTLY SPELLED WORDS IN THE POST-TEST
 AS COMPARED WITH THE PRE-TEST IN BOTH
 THE EXPERIMENTAL SECTION AND THE
 CONTROL SECTION SHOWN IN
 TABLES VII AND VIII

Cell discrepancies = $F_o - F_e$

Method	Adequate percentage of increase	Inadequate percentage of increase	Both
Experimental	1	-1	0
Control	-1	1	0
Total	0	0	0

TABLE X

CHI SQUARE, THE SUM OF ALL THE RATIOS IN THE CONTINGENCY
TABLE BASED ON THE EXPERIMENTAL AND CONTROL
SECTIONS FOR THIS STUDY¹

$$\text{Chi square} = \sum \left[\frac{(\text{Fo} - \text{Fe})^2}{\text{Fe}} \right]$$

Method	Adequate percentage of increase	Inadequate percentage of increase	Both
Experimental	.067	.067	.134
Control	.067	.067	.134
Total	.134	.134 (Chi square)	.268

¹Ibid., p. 276.

contingency table based on the experimental and control sections for this study.

The usual level of confidence for rejection of the null hypothesis is the five per cent to ten per cent levels.¹ The chi square of .268 which was arrived at (one degree of freedom - fourfold table) is not high enough to reject at the five per cent to ten per cent levels. Therefore, there was no difference between the experimental and the control sections that could be designated as the result of the special procedures used. What has happened here could occur by chance fluctuations more than fifty per cent of the time.

¹Ibid., p. 611.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. RESTATEMENT OF THE PROBLEM

It was the purpose of this study to measure the effect of an experimental method of teaching spelling based on grouping according to an intelligence test, as compared to a conventional method of teaching spelling to all boys and girls from the same instructional material. A random sample was selected from the sixth grade pupils at Nash School, Des Moines, Iowa

II. PROCEDURES USED

The random sample used in this study was divided into two sections as equally as possible. One section was further divided into three groups, each of which was taught from instructional material according to ability level. The other section was taught from grade level instructional material as a group. A one-hundred word spelling test was given before and after the experimental period to aid in measuring the effect of the methods.

III. PRINCIPAL FINDINGS AND CONCLUSIONS

For the purpose of analysis the null hypothesis was

assumed. Chi square was used in analyzing the results. The chi square value was not large enough to reject the null hypothesis.

It may be concluded that there was no difference between the two sections that could be designated as the result of the special procedures used in the Nash School sample.

IV. RECOMMENDATIONS

In reviewing the literature for this study the writer discovered that many educators recognized the existence and need for meeting individual differences in children's ability to learn spelling. Suggestions for meeting these individual differences may be found, among which is grouping children according to ability. However, few specific studies dealing with methods of meeting individual differences were found. It is, therefore, the recommendation of this writer that more studies be made in the area of meeting individual differences in spelling ability. It is further recommended that additional research be done in the area of grouping children for the instruction of spelling. Refinements in the procedures used in this study and the use of larger samples might result in statistically significant results.

BIBLIOGRAPHY

BIBLIOGRAPHY

A. BOOKS

- Ayres, Leonard P. A Measuring Scale for Ability In Spelling. New York: Russell Sage Foundation, 1915.
- Clanfield, Mary, and Cecil Hannon. Teach Spelling By All Means. San Francisco: Fearon Publishers, 1961.
- Dawson, Mildred A., and Frieda Hayes Dingee. Children Learn the Language Arts. Minneapolis: Burgess Publishing Company, 1959.
- Dawson, Mildred A., and Marian Zollinger. Guiding Language Learning. New York: World Book Company, 1957.
- Fitzgerald, James A. The Teaching of Spelling. Milwaukee: The Bruce Publishing Company, 1951.
- Guilford, J. P. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill Book Company, Inc., 1950.
- Herrick, Virgil, and others. The Elementary School. Englewood Cliffs: Prentice-Hall, Inc., 1956.
- Hildreth, Gertrude. Learning The Three R's. Second Edition. Minneapolis: Educational Publishers, Inc., 1947.
- Hildreth, Gertrude. Teaching Spelling. New York: Houghton Mifflin Company, 1956.
- Lee, J. Murray, and Dorris May Lee. The Child and His Curriculum. New York: Appleton-Century-Crofts, Inc., 1960.
- Macomber, Freeman Glenn. Principles of Teaching in the Elementary School. New York: American Book Company, 1954.
- McKee, Paul. Language in the Elementary School. Boston: Houghton Mifflin Company, 1939.
- Patton, David H., and Eleanor M. Johnson. Spelling for Word Mastery. Columbus: Charles E. Merrill Books, 1957.

Patton, David H., and Eleanor M. Johnson. Spelling for Word Mastery, Teacher's Manual. Columbus: Charles E. Merrill Books, 1957.

Ragan, William B. Modern Elementary Curriculum. Revised Edition. New York: Holt, Rinehart and Winston, 1961.

B. PUBLICATIONS OF LEARNED SOCIETY

Horn, Ernest. Teaching Spelling. What Research Says to the Teacher No. 3. Washington D. C.: National Education Association, 1962.

C. PERIODICALS

Blake, Howard E. "Studying Spelling Independently," Elementary English, XXXVII (January, 1960), 29-32.

Campanole, Eugene A. "Survey of Methods in the Teaching of Spelling," Elementary English, XXXIX (May, 1962), 446-455.

Educational Advisory Board. "Teaching Spelling...have you tried these techniques?" The National Elementary Principal, XXXVIII (May, 1959), 37-39.

Gilstrap, Robert. "The Development of Independent Spelling Skills in the Intermediate Grades," Elementary English, XXXIX (May, 1962), 481-483.

Hanna, Paul R., and Jean S. Hanna. "Spelling Today," The Instructor, LXX (November, 1960), 6, 106.

Therman, Viola. "Research Indicates More Effective Ways of Teaching Spelling," NEA Journal, XL (December, 1951), 607-608.

D. ENCYCLOPEDIA ARTICLE

Horn, Ernest. "Spelling," Encyclopedia of Educational Research, 1247-1264. New York: The Macmillan Company, 1950.

E. UNPUBLISHED MATERIAL

Collins, Ruth, and others. "Spelling Curriculum Guide
Grades 1-6." Des Moines: Department of Elementary
Education, Des Moines Public Schools, 1958.
(Mimeographed)